UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
EBIRIM, EMEKA

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Status

1.   The application has been examined. Claims 1-30 are rejected as detailed below

and are pending in this office action.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

3.   Claims 29-30 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

Claims 29, 30 are not limited to tangible embodiments. In view of Applicants

disclosure, specification page [10 lines 15-21], the medium is not limited to tangible

embodiments, instead being defined as including both tangible embodiments (e.g.,

[page 10, line19]) and intangible embodiments (e.g., [lines 20-21]). As such, the claim is

not limited to statutory subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-5, 7-8,12-18, 20-21, 25-30 are rejected under 35 U.S.C. 102(b) as

being anticipated by Patent No.: 6,266,658 to Adya et al (hereinafter Adya).

Claim 1.

   Adya discloses:

   A method of performing a database query, the method comprising [queries to a

database, Col 1 line 22-24]:

   generating an access plan for the database query, the access plan using at least

one resource capable of being retrieved into working memory, wherein the resource is

selected from the group consisting of a database file, a database table, an index, a

temporary result set, a temporary file, and a hash table [execution plan generated

(access plan), database, index, results, Col 3 line 40, Col 7 lines 1-7];

   estimating a percentage of the resource that is currently resident in working

memory [usage information, Col 7 line 5-7, Col 10 lines 11-14, Col 8 lines 25-30];

   estimating a cost for the access plan using the estimated percentage [cost

estimated cost of current configuration, Col 8 lines 29-30]; and

   selectively executing the access plan based upon the estimated cost [plan of

execution, Col 7 lines 1-5].

Claim 2.

   Adya discloses the elements of claim 1 as above and further it discloses

generating a second access plan for the database query and estimating a cost

for the second access plan, wherein selectively executing the first access plan includes

comparing the estimated costs for the first and second access plan and executing the

first access plan if the estimated cost therefor is less than that of the second access

plan [plan of execution, based on cost of plan, Col 7 lines 1-5, 12-14].

Claim 3.

Adya discloses

A method of optimizing a database query, the method comprising [query

optimizer, Col 3 line 27]:

determining a retrieval status for a resource used by the database query [Col 7

lines 1-5, 12-14]; and

generating an access plan for the database query using the determined retrieval

status for the resource[plan of execution, based on cost of plan, Col 7 lines 1-5, 12-14].

Claim 4.

Adya discloses the elements of claim 3 as above and further it discloses wherein

the resource is selected from the group consisting of a database file, a database table,

an index, a temporary result set, a temporary file, a hash table, and combinations

thereof [table, database, index, results, Col 3 line 40, Col 7 lines 1-7, line 45].

Claim 5.

Adya discloses the elements of claim 3 as above and further it discloses wherein

determining the retrieval status includes determining whether at least a portion of the

resource is resident in working memory [memory, Col 1 lines 51-53 Col 5 lines 12-13]

Claim 7.

Adya discloses the elements of claim 3 as above and further it discloses wherein

determining the retrieval status includes determining whether at least a portion of the

resource is resident in a local or a remote memory [local and remote memory, Col 5

lines 8-9].

Claim 8.

Adya discloses the elements of claim 3 as above and further it discloses

determining the retrieval status includes determining a percentage of the resource that

is resident in working memory [memory, Col 1 lines 51-53 Col 5 lines 12-13].

Claim 12.

Adya discloses the elements of claim 3 as above and further it discloses

generating the access plan includes [execution plan generated Col 3 line 40, Col 7 lines

1-7]:

generating a plurality of alternate access plans [Col 7 lines 1-5,12-15, Fig 2];

calculating a cost for each alternate access plan using the determined retrieval

status for the resource[Col 7 lines 12-15]; and

selecting one of the alternate access plans based upon the calculated costs for

each alternate access plan [Col 7 lines 12-15].

Claim 13.

Adya discloses the elements of claim 12 as above and further it discloses the

retrieval status for the resource indicates a percentage of the resource that is resident in

working memory, and wherein calculating the cost for each alternate access plan

includes [Col 7 lines 1-5,12-15, Fig 2, Col 8 line 27-30]:

calculating the cost as a function of input/output cost and processing cost

[workload cost, Col 7 lines 27-29]; and

calculating the input/output cost by scaling an estimated input/output cost by a

scalar value associated with the percentage of the resource that is resident in working

memory [Col 7 lines 27-29, Col 8 lines 27-31].

Claim 14.

Adya discloses the elements of claim 12 as above and further it discloses

storing the access plan, including associating with the stored access plan a

retrieval status assumption for the stored access plan, the retrieval status assumption

representing the determined retrieval status used to generate the access plan [store,

execution plan Col 5 lines39-40, Col 3 lines 39-41]; and

in response to a request to execute the stored access plan [execution plan, Col 3

lines 39-41]:

determining a current retrieval status for the resource [Col 8 lines 27-31];

comparing the current retrieval status with the retrieval status

assumption[Col 7 lines 12-20]; and

selectively generating another access plan for the database query using the

current retrieval status based upon the comparison of the current retrieval status with

the retrieval status assumption [Col 7 lines 1-5,12-20].

Claim 15.

Adya discloses the elements of claim 3 as above and further it disclose

determining the retrieval status includes determining whether a beginning portion of the

resource is resident in working memory, the method further comprising calculating a

cost for the access plan based upon the determined retrieval status, including weighting

the cost based upon the beginning portion of the resource being resident in working

memory [Col 5 lines 8-13, Col 8 lines 22-33].

Claim 16.

Adya discloses:

at least one processor [Col 4 line 67];

a memory that includes a working memory [Col 5 lines 8-12]; and

program code resident in the memory and configured to be executed by the at

least one processor to optimize a database query by determining a retrieval status for a

resource used by the database query, and generating an access plan for the database

query using the determined retrieval status for the resource [optimizing function, code,

Fig 7, Col 6 lines 45-46, line 67].

Claim 17.

Claim 17 is essentially the same as claim 4 except that it recites "apparatus". It is

rejected for the same reason (hereinabove).

Claim 18.

Claim 18 is essentially the same as claim 5 except that it recites "apparatus". It is

rejected for the same reason (hereinabove).

Claim 20.

Claim 20 is essentially the same as claim 7 except that it recites "apparatus". It is

rejected for the same reason (hereinabove).

Claim 21.

Claim 21 is essentially the same as claim 8 except that it recites "apparatus". It is

rejected for the same reason (hereinabove).

Claim 25.

Claim 25 is essentially the same as claim 12 except that it recites "apparatus". It

is rejected for the same reason (hereinabove).

Claim 26.

Claim 26 is essentially the same as claim 13 except that it recites "apparatus". It

is rejected for the same reason (hereinabove).

Claim 27.

Claim 27 is essentially the same as claim 14 except that it recites "apparatus". It

is rejected for the same reason (hereinabove).

Claim 28.

Claim 28 is essentially the same as claim 15 except that it recites "apparatus". It

is rejected for the same reason (hereinabove).

Claim 29.

Adya discloses:

program code configured to optimize a database query by determining a retrieval

status for a resource used by the database query, and generating an access plan for

the database query using the determined retrieval status for the resource; and a

computer readable signal bearing medium bearing the program code [optimizing

function, code, Fig 7, Col 6 lines 45-46, line 67].

Claim 30.

Adya discloses:

The program product of claim 29, wherein the computer readable signal bearing

medium includes at least one of a transmission medium and a recordable medium [Col

5 lines25-30].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6,9-11,19,22-24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Patent No.: 6,073,129 to Levine et al (hereinafter Levine).

Claim 6.

Adya discloses the elements of claim 3 as above but it does not explicitly indicate

"cache". Levine discloses the claimed "cache" [See Levine abstract].

It would have been obvious to one of ordinary skill in the art of data processing to

have combined the cited references because cache as disclosed by Levine would have

enabled Adya to provide a more efficient cache organization for improving system

performance. Furthermore it would have provided a more efficient way of managing memory resources during the processing of information queries.

Claim 9.

Adya discloses the elements of claim 3 as above but it does not explicitly indicate "manager". Levine discloses the claimed "manager" [manager, Levine Col 5 line 15].

It would have been obvious to one of ordinary skill in the art of data processing to have combined the cited references because manager as disclosed by Levine would have enabled Adya to provide a more efficient cache organization for improving system performance. Furthermore it would have provided a more efficient way of managing memory resources during the processing of information queries.

Claim 10.

The combination of Adya and Levine discloses the elements of claim 9 as above and furthermore it discloses tracking, with the resource manager, a percentage of the resource that is in working memory [monitor (track) Levine Col 17 lines 50-51].

Claim 11.

The combination of Adya and Levine discloses the elements of claim 9 as above and furthermore it discloses storing the percentage of the resource that is in working memory in a header for a persistent copy of the resource [persistent, Levine Col 22 line 43].

Claim 19

Claim 19 is essentially the same as claim 6 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 22.

Claim 22 is essentially the same as claim 9 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 23.

Claim 23 is essentially the same as claim 10 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 24.

Claim 24 is essentially the same as claim 11 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emeka Ebirim whose telephone number is 571-272-3994. The examiner can normally be reached on 8:30pm - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KHANH B. PHAM
PRIMARY EXAMINER   Name: Emeka Ebirim

                                                      Art Unit: 2166